IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

MHL TEK, LLC, Plaintiff, v. NISSAN MOTOR CO.; *et al.* Defendants.	Case No. 2:07-cv-289-TJW JURY TRIAL DEMANDED **ANSWER OF DEFENDANTS AUDI AG, AUDI OF AMERICA, INC., VOLKSWAGEN AG, AND VOLKSWAGEN OF AMERICA, INC.**

Defendants Audi AG and Audi of America, Inc. (referred to as "AUDI" herein), and Volkswagen AG and Volkswagen of America, Inc. (referred to as "VW" herein), through their attorneys, answer the Complaint of Plaintiff MHL Tek, LLC ("MHL") as follows:

1. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 1, and therefore deny them.

2. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 2, and therefore deny them.

3. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 3, and therefore deny them.

4. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 4, and therefore deny them.

5. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 5, and therefore deny them.

6. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 6, and therefore deny them.

7. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 7, and therefore deny them.

8. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 8, and therefore deny them.

9. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 9, and therefore deny them.

10. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 10, and therefore deny them.

11. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 11, and therefore deny them.

12. Defendant Audi AG is a corporation organized and existing under the laws of Germany having a place of business at 85045 Ingolstadt, Germany; otherwise denied.

13. Defendant Audi of America, Inc. is a d/b/a of Volkswagen of America, Inc., having a place of business at 3800 Hamlin Road, Auburn Hills, Michigan 48326; otherwise denied.

14. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 14, and therefore deny them.

15. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 15, and therefore deny them.

16. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 16, and therefore deny them.

17. AUDI and VW are without knowledge or information sufficient to form a belief as

to the truth of the allegations of paragraph 17, and therefore deny them.

18. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 18, and therefore deny them.

19. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 19, and therefore deny them.

20. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 20, and therefore deny them.

21. AUDI and VW are without knowledge or information sufficient to form a belief as to the truth of the allegations of paragraph 21, and therefore deny them.

22. Defendant Volkswagen AG is a corporation organized and existing under the laws of Germany having a place of business at 38436 Wolfsburg, Germany; otherwise denied.

23. Defendant Volkswagen of America, Inc. is a corporation organized and existing under the laws of the State of New Jersey having a place of business at 3800 Hamlin Road, Auburn Hills, Michigan 48326; otherwise denied.

24. AUDI and VW admit that this action arises under the patent laws of the United States; otherwise denied.

25. Denied.

26. Denied.

27. AUDI and VW re-allege and incorporate herein their responses to paragraphs 1–26 of the Complaint as if fully set forth herein.

28. Denied.

29. Denied.

30. Denied.

31. Denied.

32. Denied.

33. Denied.

34. AUDI and VW re-allege and incorporate herein their responses to paragraphs 1–33 of the Complaint as if fully set forth herein.

35. Denied.

36. Denied.

37. Denied.

38. Denied.

39. Denied.

40. Denied.

41. AUDI and VW re-allege and incorporate herein their responses to paragraphs 1–40 of the Complaint as if fully set forth herein.

42. Denied.

43. Denied.

44. Denied.

45. Denied.

46. Denied.

47. Denied.

DEFENSES

First Defense – Non-Infringement

48. Neither AUDI nor VW is infringing or has infringed any claim of U.S. Patent

No. 5,663,496 ("the '496 patent"), U.S. Patent No. 5,731,516 ("the '516 patent") or U.S. Patent No. 5,741,966 ("the '966 patent"), either literally or under the doctrine of equivalents. Furthermore, plaintiff is precluded under the doctrines of disclaimer and prosecution history estoppel from asserting a scope for the claims of the '496, '516 and '966 patents that would encompass any AUDI or VW products.

Non-Infringement of the '496 Patent

49. For example, the products of AUDI and VW do not include at least the following elements of the claims of the '496 patent:

- "transmitting the generated signal along the electromagnetic path by introducing the generated signal to the electromagnetic path first end wherein the electromagnetic path includes a ground plane of the vehicle"
- "receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generated signal"
- "monitoring the tire parameter by monitoring the path signal"
- "an electromagnetic path being formed of a plurality of conductive components of the vehicle including a ground plane of the vehicle, the electromagnetic path having first and second ends; a transmitter, in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path"
- "a receiver, in electrical communication with the electromagnetic path second end, for receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generating signal"
- "a monitor, in electrical communication with the receiver, for monitoring the tire parameter by monitoring the path signal"
- "an electromagnetic path being formed of a plurality of conductive components of the vehicle ground plane including a wheel rim for the tire, one or more wheel bearings for rotatably supporting the wheel on a non-rotating member, and the non-

> rotating member, the electromagnetic path having first and second ends; a transmitter in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path"

50. As a further example, claim 1 of the '496 patent requires,

> A method for monitoring a parameter of a tire for a vehicle having *a plurality of conductive components which form an electromagnetic path* with first and second ends, the method comprising the steps of:
>
> generating a signal indicative of a parameter of the tire using a sensor disposed within the tire;
>
> transmitting the generated signal along the electromagnetic path by introducing the generated signal to the electromagnetic path first end wherein *the electromagnetic path includes a ground plane of the vehicle*;
>
> receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generated signal; and
>
> monitoring the tire parameter by monitoring the path signal . . . .

(Emphasis added).

51. Claim 7 of the '496 patent specifically requires,

> A system for monitoring a parameter of a tire for a vehicle, the system comprising:
>
> a sensor, disposed within the tire, for generating a signal indicative of the parameter of the tire;
>
> an electromagnetic path being *formed of a plurality of conductive components of the vehicle including a ground plane of the vehicle*, the electromagnetic path having first and second ends;
>
> a transmitter, in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path;
>
> a receiver, in electrical communication with the electromagnetic path second end, for receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generating signal; and

> a monitor, in electrical communication with the receiver, for monitoring the tire parameter by monitoring the path signal . . . .

(Emphasis added).

52. And claim 17 of the ’496 patent further requires,

> A system for monitoring a parameter of a tire for a vehicle, the system comprising:
>
> a sensor, disposed within the tire, for generating a signal indicative of the pressure of the tire;
>
> an electromagnetic path being *formed of a plurality of conductive components of the vehicle ground plane including a wheel rim for the tire, one or more wheel bearings for rotatably supporting the wheel on a non-rotating member, and the non-rotating member*, the electromagnetic path having first and second ends;
>
> a transmitter, in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path;
>
> a receiver, in electrical communication with the electromagnetic path second end, for receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generating signal; and
>
> a monitor, in electrical communication with the receiver, for monitoring the tire parameter by monitoring the path signal . . . .

(Emphasis added).

53. In the specification of the ’496 patent, the inventors, Michael Handfield and Helene Laliberte, distinguished, and specifically disclaimed as their invention, automatic tire pressure monitoring systems including a communications link between the transmitter and receiver of the system that uses airwave signal transmission; for example, at col. 1, l. 27–col. 2, l. 8 of the ’496 patent the inventors explained that:

> Prior art devices have attempted to resolve [the problem of operating tires at improper inflation levels] by providing an automatic tire pressure monitoring system for monitoring the pressure within the tires and providing an indication to the vehicle operator when one or more of the tires reaches a condition of

> improper inflation. One class of such tire pressure monitoring systems includes a tire pressure sensing apparatus as well as a transmitter contained within each of the tires. The tire pressure is monitored and transmitted to a central receiving unit which in turn provides an indication to the vehicle operator.
>
> *The use of airwave communications between the transmitter and receiver creates a host of problems.* With the transmitting unit wholly contained within a particular tire, relatively weak signals are transmitted since the transmitter must rely upon a battery as a source of power. Further, the metallic configuration of a vehicle frame and body is not generally conducive to the transmission of signals from the wheel wells of a vehicle to a centrally located monitor. Further, as the wheel rotates, a transmitted tire pressure signal is subjected to a doppler shift based upon this rotation if the transmitter antenna is not oriented in a fashion such that its center of mass lies along the axis of rotation of the wheel.

(Emphasis added).

54. In the specification of the ’496 patent, for example, at col. 2, l. 19–col. 3, l. 35, the inventors also specifically explained their claimed improvements over that prior art:

> A further object of the present invention is to provide a tire pressure monitoring system whereby *the vehicle ground provides an electromagnetic path for RF signals between a tire pressure monitoring sensor located within a tire and a central receiving unit*.
>
> . . . In carrying out the above objects, the present invention provides a method for monitoring a parameter of a tire for a vehicle having *one or more conductive components which form an electromagnetic path* with first and second ends.
>
> . . . In further carrying out the above objects, the present invention provides a system for monitoring a parameter of a tire for a vehicle.
>
> This system comprises a sensor, disposed within the tire, for generating a signal indicative of the parameter of the tire, *an electromagnetic path being formed of a plurality of conductive components of the vehicle*, the electromagnetic path having first and second ends, a transmitter, in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path, a receiver, in electrical communication with the electromagnetic path

> second end, for receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generating signal, and a monitor, in electrical communication with the receiver, for monitoring the tire parameter by monitoring the path signal.
>
> Moreover, in carrying out the above objects, the present invention provides a system for monitoring a parameter of a tire for a vehicle.
>
> The system comprises a sensor, disposed within the tire, for generating a signal indicative of the pressure of the tire, *an electromagnetic path being formed of a plurality of conductive components of the vehicle including a wheel rim for the tire, one or more wheel bearings for rotatably supporting the wheel on a non-rotating member, and the non-rotating member*, the electromagnetic path having first and second ends, a transmitter, in electrical communication with the sensor and with the electromagnetic path first end, for transmitting the generated signal along the electromagnetic path, a receiver, in electrical communication with the electromagnetic path second end, for receiving a path signal at the electromagnetic path second end, the path signal being responsive to the generating signal, and a monitor, in electrical communication with the receiver, for monitoring the tire parameter by monitoring the path signal.

(Emphasis added).

55. Moreover, claims 1, 7 and 17 were amended by the inventors during prosecution of the ’496 patent, by an Amendment dated June 28, 1996, to specifically include the limitation “wherein the electromagnetic path includes a ground plane of the vehicle,” and the limitation “an electromagnetic path being formed of a plurality of conductive components of the vehicle including a ground plane of the vehicle,” and the limitation “an electromagnetic path being formed of a plurality of conductive components of the vehicle ground plane,” in order to overcome rejections by the patent examiner of the inventors’ claims as unpatentable over the prior art.

56. In that same Amendment dated June 28, 1996, the inventors also argued that claims 1, 7 and 17 of the ’496 patent were patentable because,

> *One of the key features of Applicants' invention is the use of an electromagnetic path which includes a plurality of conductive components of a vehicle*. Applicants have amended independent claims 1, 7, and 17 to further indicate that the electromagnetic path includes the ground plane of the vehicle . . . Applicants respectfully submit that none of the art of record discloses or suggests using conductive components of the vehicle to transmit a pressure or temperature signal as claimed by Applicants.

(Emphasis added).

57. Subsequently, in an Appeal Brief dated January 30, 1997, the inventors again argued that claims 1, 7 and 17 of the '496 patent were patentable because,

> Neither of the references applied by the Examiner address the problem solved by Applicants' invention: communicating a relatively weak signal from a sensor disposed within a pneumatic tire to a centrally located receiver . . . *There is no disclosure of an electromagnetic path which includes a plurality of conductive components in the ground plane of the vehicle* as described and claimed by Applicants . . . .
>
> Similarly, Merz '208 also discloses a contactless transmission path. . . . a radio frequency transmitter is used to transmit signals to an operator station . . . *There is no disclosure of transmitting the signal along an electromagnetic path which includes a plurality of conductive components and also the ground plane of the vehicle.*

(Emphasis added).

58. The products of AUDI and VW do not include, for example, an electromagnetic path which includes a plurality of conductive components in the ground plane of the vehicle as a communications link between a transmitter in a tire unit and a centrally located receiver for transmitting signals along the electromagnetic path, as required by the claims of the '496 patent.

Non-Infringement of the '966 Patent

59. In addition, the products of AUDI and VW do not include at least the following elements of the claims of the '966 patent:

- "a programmable processor, in electrical communication with the sensor for determining status of the tire parameter by comparing the tire parameter to a selected threshold"

- "a transmitter, in electrical communication with the processor for transmitting a status signal indicative of the status of the tire parameter along a first communications link"

- "a monitor, in communication with the first communications link, for monitoring the status of the tire parameter"

- "a remote controller, positionable for communication with the communication unit via a second communications link, for initiating the processor control command"

- "a transmitter, in electrical communication with the sensor for transmitting the generated signal along a first communications link"

- "a monitor, in communication with the first communications link, for monitoring the tire parameter by receiving the generated signal"

- "a programmable processor, in electrical communication with the monitor for determining an alarm condition based upon the monitored tire parameter"

- "a remote controller, positionable for electrical communication with the communication unit along a second communications link, for initiating the processor control command"

- "a piezo-electric element, for supplying power to the transmitter independent of inflation pressure of the tire"

- "a capacitive element connected to the piezo-electric element for storing energy and providing power to the transmitter when the inflatable tire is stationary"

60. As a further example, claim 1 of the '966 patent specifically requires,

> A system for monitoring a status of a parameter of a tire for a vehicle, the system comprising:
>
> a *sensor, disposed within the tire,* for generating a signal indicative of the parameter of the tire independently of magnitude of the parameter;
>
> a *programmable processor, in electrical communication with the*

> *sensor* for determining status of the tire parameter by comparing the tire parameter to a selected threshold;
>
> a transmitter, in electrical communication with the processor for transmitting a status signal indicative of the status of the tire parameter along *a first communications link*;
>
> a monitor, in communication with the first communications link, for monitoring the status of the tire parameter;
>
> a communication unit in electrical communication with the processor having a first receiver for receiving a processor control command; and
>
> a *remote controller*, positionable for communication with the communication unit via *a second communications link*, for initiating the processor control command.

(Emphasis added).

61. Claim 12 of the ’966 patent specifically requires,

> A system for monitoring a parameter of a tire for a vehicle, the system comprising:
>
> a *sensor, disposed within the tire*, for generating a signal indicative of the parameter of the tire;
>
> a transmitter, in electrical communication with the sensor for transmitting the generated signal along *a first communications link*;
>
> a monitor, in communication with the first communications link, for monitoring the tire parameter by receiving the generated signal;
>
> a *programmable processor*, in electrical communication with the monitor for determining an alarm condition based upon the monitored tire parameter;
>
> a communication unit in electrical communication with the processor having a first receiver for receiving a processor control command; and
>
> a *remote controller*, positionable for electrical communication with the communication unit along *a second communications link*, for initiating the processor control command.

(Emphasis added).

62. And claim 13 of the ’966 patent specifically requires,

> A system for monitoring a parameter of an inflatable tire for a vehicle, the system comprising:
>
> a sensor, disposed within the tire, for generating a signal indicative of the parameter of the tire;
>
> a transmitter, in electrical communication with the sensor for transmitting the generated signal along *a first communications link*;
>
> a *piezo-electric element*, for supplying power to the transmitter independent of inflation pressure of the time;
>
> a *capacitive element* connected to the piezo-electric element for storing energy and providing power to the transmitter when the inflatable tire is stationary; and
>
> a monitor, in communication with *the first communications link*, for monitoring the tire parameter by receiving the generated signal.

(Emphasis added).

63. In the specification of the ’966 patent, the inventors, Michael Handfield and Helene Laliberte, again distinguished, and specifically disclaimed as their invention, automatic tire pressure monitoring systems including a communications link between the transmitter and receiver of the system that uses airwave signal transmission, as well as battery-powered transmitters, and pressure sensor-transmitter units within a tire that require dismounting of the tire for reprogramming or testing; for example, at col. 1, l. 27–col. 2, l. 8 of the ’966 patent the inventors explained that:

> Prior art devices have attempted to resolve this problem by providing an automatic tire pressure monitoring system for monitoring the pressure within the tires and providing an indication to the vehicle operator when one or more of the tires reaches a condition of improper inflation. . . .
>
> *The use of airwave communications between the transmitter and receiver creates a host of problems*. . . .
>
> *The reliance upon a battery in these prior art systems provides a further problem*, that of limited battery life. If a battery is installed

> in a tire pressure monitoring system within a tire, that battery will require replacement at some point which could require the dismounting of the vehicle tire from the wheel . . . .
>
> *A further problem with prior art tire pressure monitoring systems where a pressure sensor and transmitter unit is contained within a tire is that reprogramming or testing of the unit requires dismounting of the tire*. This is an inconvenient and expensive process.

(Emphasis added).

64. In the specification of the ’966 patent, for example, at col. 2, l. 19–col. 4, l. 15, the inventors also explained that:

> A further object of the present invention is to provide a tire pressure monitoring system whereby *the vehicle ground provides an electromagnetic path for RF signals between a tire pressure monitoring sensor located within a tire and a central receiving unit*.
>
> . . . An object of the present invention is also to provide a *communication link between a detector/transmitter unit disposed within a tire and a remote controlling unit for storing the various parameters of the detector/transmitter unit, for reading the status and operational parameters of the unit, and for initiating a test of the sensor*.
>
> . . . In carrying out the above objects, the present invention provides a method for monitoring a parameter of a tire for a vehicle having *one or more conductive components which form an electromagnetic path* with first and second ends.
>
> . . . In further carrying out the above objects, the present invention provides a system for monitoring a parameter of a tire for a vehicle.
>
> This system comprises a sensor, disposed within the tire, for generating a signal indicative of the parameter of the tire, *an electromagnetic path being formed of a plurality of conductive components of the vehicle*. . . .
>
> In carrying out the above objects, the present invention also provides a system for monitoring the status of a parameter of a tire for a vehicle.
>
> The system comprises a *sensor, disposed within the tire,* for

> generating a signal indicative of the parameter of the tire, a *processor*, in electrical communication with the sensor for determining the status of the tire parameter by comparing the tire parameter to a selected threshold, a transmitter, in electrical communication with the processor for transmitting a status signal indicative of the tire parameter status along *a first communications link*, a monitor, in communication with the first communications link, for monitoring the status of the tire parameter, a communication unit in electrical communication with the processor having a first receiver for receiving a processor control command, and a *remote controller*, positionable for electrical communication with the communication unit along *a second communications link*, for initiating the processor control command.
>
> In addition, in carrying out the above objects, the present invention provides a system for monitoring a parameter of a tire for a vehicle.
>
> The system comprises a *sensor, disposed within the tire*, for generating a signal indicative of the parameter of the tire, a transmitter, in electrical communication with the sensor for transmitting the generated signal along *a first communications link*, a monitor, in communication with *the first communications link*, for monitoring the tire parameter by receiving the generated signal, a *processor*, in electrical communication with the monitor for determining an alarm condition based upon the monitored tire parameter, a communication unit in electrical communication with the processor having a first receiver for receiving a processor control command, and a *remote controller*, positionable for electrical communication with the communication unit along *a second communications link*, for initiating the processor control command.
>
> In carrying out the above objects, the present invention further provides a system for monitoring a parameter of an inflatable tire for a vehicle.
>
> The system comprises a sensor, disposed within the tire, for generating a signal indicative of the parameter of the tire, a transmitter, in electrical communication with the sensor for transmitting the generated signal along *a first communications link*, a *piezo-electric element*, for supplying power to the transmitter independent of the inflation pressure of the tire, a monitor, and in communication with *the first communications link*, for monitoring the tire parameter by receiving the generated signal.

(Emphasis added).

65. In addition, during prosecution of the application for the ’966 patent, in an Amendment dated October 19, 1995, the limitation “programmable processor” was added to original claims 24 and 35 (issued claims 1 and 12 of the ’966 patent) in response to a rejection of the inventors’ claims as unpatentable over the prior art. In the Amendment, the inventors also argued that these claims were patentable because the prior art did not describe a remote controller communicating with a programmable processor to exchange information such as a tire identification code, or to program the selected threshold:

> . . . Applicants have amended the claims to more particularly point out and distinctly claim that which they regard as their invention while also distinguishing over the prior art of record.
>
> Applicants' claims in this divisional application are directed toward a system for monitoring a parameter of a tire as described in detail on page 28 beginning at line 8 and extending through page 31, line 14 [’966 patent, col. 12, l. 1–col. 13, l. 25].
>
> . . . Furthermore, Applicants' invention includes a remote controller which communicates with the programmable processor to exchange information such as a tire identification code, or to program the selected threshold.

66. The claimed system for monitoring a parameter of a tire described on page 28 beginning at line 8 and extending through page 31, line 14 of the application for the ’966 patent [’966 patent, col. 12, l. 1–col. 13, l. 25] referred to by the inventors in the Amendment of October 19, 1995, describes the detector/transmitter unit of the system, located in the tire, as including the programmable processor; for example, at col. 5, ll. 4-9 and col. 12, l. 1–col. 13, l. 25, the inventors explained that:

> FIG. 7 presents a combination schematic/block diagram of one embodiment of the detector/transmitter unit of the tire parameter monitoring system of the present invention;
>
> FIG. 8 presents a block diagram of the supervisory link interface for the detector/transmitter of one embodiment of the present invention . . . .

> Turning now to FIG. 7, a combination schematic/block diagram of a detector/transmitter unit 10 is presented. A detector processor logic array 200 is shown as a series of functional sub-blocks 212 through 236 . . . .
>
> Induction coil 244 is placed so as to provide an inductively coupled communication link between induction coil 244 and a separate, remotely place [sic] coil. This inductive link provides a source of communication between the detector/ transmitter unit 10 and a remote controller for remote controlling and monitoring of the unit. This inductive link 242 is connected to service detector 222 of processor 200 via voltage doubling diodes 241.
>
> . . . Turning now to FIG. 8, a block diagram of the supervisory feature of the detector/transmitter unit 10 of the present invention is shown. Detector processor 200 is connected to detector ROM 304 and detector RAM 306. Further, the processor 200 communicates with a remote control device shown over supervisory link 300 via decoder/encoder 302. In the preferred embodiment, supervisory link 300 is implemented by the inductive link described in conjunction with FIG. 7. Unique 4-bit patterns initiate the functions of dumping and storing various system parameters including the tire number, transmitter unit ID number, and also including the various pressure and temperature thresholds and nominal values, if applicable. Further, remote control via the supervisory link may allow the user to change the controller configuration, for example, switch the processor from receiving inputs from one A to D converter to another. In addition, by remote control a test program could be initiated for determining whether or not the sensor or alternately the battery is operating properly.
>
> Moreover, via remote control the user could dump the system ROM or RAM or alternately store additional data in the system RAM. In addition, the remote user could dump additional system information including the vehicle number, the serial number, the production date of the software in the ROM or other system information.

67. Moreover, in an Appeal Brief dated July 1, 1996, the inventors argued that their claims were patentable over the prior art because,

> Applicants disclose and claim a system for monitoring a pneumatic tire which includes a remote controller which communicates with a tire pressure and/or temperature sensor for exchanging various control commands with *the processor of the sensor*. . . .

> As described on page 3, lines 13–18, locating the pressure sensor and transmitter unit inside of the tire requires dismounting of the tire to reprogram or test the unit in prior art devices.
>
> As such, the present invention attempts to overcome these programs [sic] found in prior art devices. . . .
>
> The present invention also provides a communication link between a remote controller and the detector/transmitter disposed within the tire so that dismounting of the tire for reprogramming or testing is no longer required . . . .
>
> None of the references cited by the Examiner recognize the problem of programming a tire pressure and/or temperature sensor which is mounted within a pneumatic tire. As such, none of the references cited by the Examiner teach or suggest a remote controller which may be used to exchange information with the sensor unit such as system parameters, thresholds, and the like . . . .

(Emphasis added).

68. Also, during prosecution of the ’966 patent, in an Appeal Brief dated July 1, 1996, the inventors, arguing the reasons why application claim 36 of the ’966 patent was patentable over the prior art, stated,

> Because none of the art cited recognized the problem associated with prior art piezo-electric elements used in tire monitoring applications, none of them disclose or suggest a *piezo-electric element which supplies power independent of inflation pressure by being mounted on a weighted member which vibrates when the tire spins and by including a capacitive element to store power* for use when the tire is stationary.

(Emphasis added).

69. Subsequently, in an Amendment dated January 15, 1997, in response to a rejection of the inventors’ application claim 36 by the patent examiner as unpatentable over the prior art, the limitation “a capacitive element connected to the piezo-electric element for storing energy and providing power to the transmitter when the inflatable tire is stationary” was added by the inventors, and issued as ’966 patent claim 13. In that January 15, 1997, Amendment, the

inventors again stated that they were revising their claims "such that all of the pending claims are now believed to be allowable over the prior art of record."

70. The products of AUDI and VW do not include, for example, an electromagnetic path which includes a plurality of conductive components in the ground plane of the vehicle as a communications link between a transmitter in a tire unit and a centrally located receiver for transmitting signals along the electromagnetic path, as required by the claims of the '966 patent.

71. The products of AUDI and VW do not include, for example, a remote controller which communicates with a programmable processor in the detector/transmitter unit of a tire to exchange information such as tire identification code, or to program the selected threshold, as required by the claims of the '966 patent.

72. The products of AUDI and VW also do not include, for example, a piezo-electric element for supplying power to the detector/transmitter unit, including a capacitive element connected to the piezo-electric element for storing energy and providing power to the transmitter, as required by the claims of the '966 patent.

Non-Infringement of the '516 Patent

73. As another example, the products of AUDI and VW do not include at least the following elements of the claims of the '516 patent:

- "a cylindraceous housing…, the housing including an elongate portion…, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel"

- "at least one conductive elastomeric seal surrounding a region of the elongate portion of the housing, the seal for contacting the conductive portion of the housing and the conductive wheel to provide an electric path therebetween . . . ."

- "a cylindraceous housing…, the housing including an elongate portion…, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel as an antenna"

74. As another example, claim 1 of the '516 patent specifically requires,

> Apparatus for monitoring inflation pressure of a pneumatic tire mounted on a conductive wheel, the apparatus comprising: a cylindraceous housing having a passage to allow air ingress and egress to and from the pneumatic tire, the housing including an elongate portion adapted for extension through an aperture of the wheel, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow *transmission of the signal using the conductive wheel . . . .*

(Emphasis added).

75. Claim 7 of the '516 patent specifically requires,

> Apparatus for monitoring inflation pressure of a pneumatic tire mounted on a conductive wheel, the apparatus comprising:
>
> a cylindraceous housing having a passage to allow air ingress and egress to and from the pneumatic tire, the housing including an elongate portion adapted for extension through an aperture of the wheel, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow *transmission of the signal using the conductive wheel . . . .*

(Emphasis added).

76. And claim 10 of the '516 patent specifically requires,

> a cylindraceous housing having a passage to allow air ingress and egress to and from the pneumatic tire, the housing including an elongate portion adapted for extension through an aperture of the wheel for threaded engagement with a valve cap, the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal *using the conductive wheel as an antenna . . . .*

(Emphasis added).

77. In the specification of the ’516 patent, the inventors, Michael Handfield and Helene Laliberte, distinguished, and specifically disclaimed as their invention, automatic tire pressure monitoring systems including a communications link between the transmitter and receiver of the system that does not use the vehicle wheel as an antenna for signal transmission; for example, at col. 1, l. 65–col. 3, l. 4 of the ’516 patent the inventors explained that:

> A number of prior art devices have attempted to solve the problem of improperly inflated vehicle tires by providing an automatic tire pressure monitoring system. Typically, these systems monitor tire parameters, such as temperature and pressure, and provide an indication to the vehicle operator if any of the vehicle tires are improperly inflated or a potential safety hazard exists due to severe under inflation (which may be a flat tire or a blow-out). Many of the prior art systems provide a remote sensor within each of the tires in addition to a transmitter for transmitting a signal to a centrally located receiving unit. However, each of the prior art systems has succumbed to at least one of the many varied challenges imposed upon a sensor subjected to the incredibly harsh operating environment of a vehicle tire.
>
> A typical vehicle operating environment is not particularly amenable to the transmission and reception of digital or analog signals. Since the transmitter is often located entirely within a vehicle tire, powered by a battery separate from the vehicle battery, the receiver must be especially sensitive to the detection of relatively weak signals present in an electrically noisy milieu. Furthermore, the various electrically conductive components found on a typical vehicle may facilitate electrical communication but tend to hinder radio wave transmissions. For example, while a steel-belted tire resists penetration by sharp objects, a signal transmitted from within the tire maybe severely attenuated by those very same steel belts.
>
> Another problem associated with a transmitter disposed upon or within a vehicle tire is that rotation of a transmitting antenna induces a Doppler frequency shift in the transmitted signal if the antenna is not oriented with its center of mass along the axis of rotation of the vehicle tire. Thus, systems which utilize the valve stem of a tire as the transmitting antenna must provide complex detection circuitry to compensate for the Doppler shift. Alternatively, such systems may dramatically increase the

> redundancy of transmissions since much of the information will be filtered out as noise.
>
> . . . If a sensor is externally mounted, or has an externally mounted antenna, it is subjected to even greater requirements due to exposure to the elements including water, mud, snow, ice, and the like. Thus, an externally mounted component must resist contamination by dirt and debris while also functioning reliably under conditions adverse to radio frequency (RF) transmissions. For example, an externally mounted antenna should transmit a detectable signal while immersed in water, snow, or mud, especially for commercial applications which frequently encounter such unfavorable conditions.

78. In the specification of the ’516 patent, for example, at col. 3 l., 62–col. 4., l. 62, the inventors further explained that:

> Another object of the present invention is to provide a pneumatic tire monitoring system which utilizes a *wheel rim as an antenna* to communicate between a centrally located processing unit end remotely located vehicle tire sensing units.
>
> . . . In carrying out the above objects in addition to other unenumerated objects, the present invention provides a method for monitoring a parameter of a vehicle tire. The method comprises generating a signal responsive to a parameter of the tire and conditioning the generated signal for *transmission from the conductive wheel*. The method further comprises transmitting the conditioned signal *via the conductive wheel* so as to reduce a frequency shift induced by rotation of the wheel, receiving the transmitted signal, and monitoring the tire parameter by monitoring the received signal.

(Emphasis added).

79. During prosecution of the ’516 patent, the inventors specifically limited the claims of this patent to the use of a conductive wheel as an antenna for the transmission of a tire pressure signal. More specifically, during prosecution, the inventors added the claim limitation “the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel” to original claim 1, and to newly submitted claims 7 and 10,

in an Amendment dated June 18, 1997, in response to the rejection by the patent examiner of original claim 1 as unpatentable over the prior art. Moreover, in that Amendment, the inventors expressly stated that they were revising their claims "to more particularly point out Applicants' invention . . . .".

80. The products of AUDI and VW do not include, for example, a pneumatic tire monitoring system which utilizes a conductive wheel rim as an antenna to communicate between a centrally located receiver and remotely located vehicle tire sensing units, as required by the claims of the '516 patent.

Second Defense – Invalidity

81. The '496, '516 and '966 patents are invalid for failing to comply with Title 35 of the Patent Laws of the United States, including but not limited to 35 U.S.C. §§ 102, 103 and 112.

Invalidity of the '496 Patent Over the Prior Art

82. Claims 1, 7 and 17 of the '496 patent were amended by the inventors during prosecution, by an Amendment dated June 28, 1996, to specifically include the limitation "wherein the electromagnetic path includes a ground plane of the vehicle," and the limitation "an electromagnetic path being formed of a plurality of conductive components of the vehicle including a ground plane of the vehicle," and the limitation "an electromagnetic path being formed of a plurality of conductive components of the vehicle ground plane," in order to overcome rejections by the patent examiner of the inventors' claims as unpatentable over the prior art.

83. In that same Amendment dated June 28, 1996, the inventors also argued that claims

1, 7 and 17 of the '496 patent were patentable because,

> One of the key features of Applicants' invention is the use of an electromagnetic path which includes a plurality of conductive components of a vehicle. Applicants have amended independent claims 1, 7, and 17 to further indicate that the electromagnetic path includes the ground plane of the vehicle . . . Applicants respectfully submit that none of the art of record discloses or suggests using conductive components of the vehicle to transmit a pressure or temperature signal as claimed by Applicants.

84. Subsequently, in an Appeal Brief dated January 30, 1997, the inventors again argued that claims 1, 7 and 17 of the '496 patent were patentable because,

> Neither of the references applied by the Examiner address the problem solved by Applicants' invention: communicating a relatively weak signal from a sensor disposed within a pneumatic tire to a centrally located receiver. Gerresheim et al. repeatedly referred to a non-contact transfer or contactless transmission. The non-contact transmission is used to communicate between the sensor which is located within the tire and a receiver located in close proximity. The signals are then transmitted by 'lines or conduits,' presumably wires, to the central processor. There is no disclosure of an electromagnetic path which includes a plurality of conductive components in the ground plane of the vehicle as described and claimer by Applicants. In contrast, Applicants' conductive components necessarily require contact as compared to contactless transmission as taught by Gerresheim et al. . . .
>
> Similarly, Merz '208 also discloses a contactless transmission path. . . . a radio frequency transmitter is used to transmit signals to an operator station . . . While the RF signal may pass through various components of the vehicle, the electromagnetic path is essentially free space. The conductive components actually interfere with (alternate) the transmitted signal. There is no disclosure of transmitting the signal along an electromagnetic path which includes a plurality of conductive components and also the ground plane of the vehicle.

(Emphasis in original.)

85. For example, the claims of the '496 patent are invalid under 35 U.S.C. § 102 and/or § 103 in view of the prior art, including, for example, U.S. Patent No. 5,231,872 to Bowler et al., issued on August 3, 1993 ("Bowler '872 patent"). The Bowler '872 patent describes a tire

monitoring system using conductive components of the vehicle including the vehicle ground plane for signal transmission. See, e.g., col. 1 ll. 5–15 and col. 7 l. 56 – col. 8 l. 2.

Invalidity of the ’516 Patent Over the Prior Art

86. During prosecution of the ’516 patent, the inventors specifically limited the claims of this patent to the use of a conductive wheel as an antenna for the transmission of a tire pressure signal. During prosecution, the inventors added the claim limitation “the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel” to original claim 1, and added the same limitation to newly submitted claims 7 and 10, in an Amendment dated June 18, 1997, in response to the rejection by the patent examiner of original claim 1 as unpatentable over the prior art. Moreover, in that Amendment, the inventors expressly stated that they were revising their claims “to more particularly point out Applicants’ invention . . . .”

87. The claims of the ’516 patent are also invalid under 35 U.S.C. § 102 and/or § 103 in view of the prior art, including, for example, U.S. Patent No. 4,717,905 to Morrison et al., issued on January 5, 1988 (“Morrison ’905 patent”). The Morrison ’905 patent describes a system for monitoring tire pressure using a conductive wheel as an antenna for signal transmission. See, e.g., col. 1 ll. 15–17 and col. 6 ll. 12–30.

Invalidity of the ’966 Patent Over the Prior Art

88. During prosecution of the application for the ’966 patent, in an Amendment dated October 19, 1995, the limitation “programmable processor” was added to original claims 24 and

35 (issued claims 1 and 12 of the '966 patent) in response to a rejection of the inventors' claims as unpatentable over the prior art. In the Amendment, the inventors also argued that these claims were patentable because the prior art did not describe a remote controller communicating with a programmable processor to exchange information such as a tire identification code, or to program the selected threshold:

> . . . Applicants have amended the claims to more particularly point out and distinctly claim that which they regard as their invention while also distinguishing over the prior art of record.
>
> Applicants' claims in this divisional application are directed toward a system for monitoring a parameter of a tire as described in detail on page 28 beginning at line 8 and extending through page 31, line 14 ['966 patent, col. 12, l. 1–col. 13, l. 25].
>
> . . . Furthermore, Applicants' invention includes a remote controller which communicates with the programmable processor to exchange information such as a tire identification code, or to program the selected threshold.

89. Moreover, in an Appeal Brief dated July 1, 1996, the inventors argued that their claims were patentable over the prior art because,

> Applicants disclose and claim a system for monitoring a pneumatic tire which includes a remote controller which communicates with a tire pressure and/or temperature sensor for exchanging various control commands with the processor of the sensor. . . .
>
> As described on page 3, lines 13–18, locating the pressure sensor and transmitter unit inside of the tire requires dismounting of the tire to reprogram or test the unit in prior art devices.
>
> As such, the present invention attempts to overcome these programs [sic] found in prior art devices. . . .
>
> The present invention also provides a communication link between a remote controller and the detector/transmitter disposed within the tire so that dismounting of the tire for reprogramming or testing is no longer required . . . .
>
> None of the references cited by the Examiner recognize the problem of programming a tire pressure and/or temperature sensor

> which is mounted within a pneumatic tire. As such, none of the references cited by the Examiner teach or suggest a remote controller which may be used to exchange information with the sensor unit such as system parameters, thresholds, and the like . . . .

(Emphasis in original).

90. Furthermore, the claims of the ’966 patent are invalid under 35 U.S.C. §§ 102 and/or § 103 in view of the prior art, including, for example, the Bowler ’872 patent, which also describes a tire monitoring system including a programmable processor and a remote controller communicating with the programmable processor. See, e.g., col. 1 ll. 5–15, col. 31 ll. 22–40, col. 31 l. 50 – col. 42 l. 45, and col. 36 l. 61 – col. 37 l. 54.

91. Also, during prosecution of the ’966 patent, in an Appeal Brief dated July 1, 1996, the inventors, arguing the reasons why application claim 36 of the ’966 patent was patentable over the prior art, stated,

> Because none of the art cited recognized the problem associated with prior art piezo-electric elements used in tire monitoring applications, none of them disclose or suggest a piezo-electric element which supplies power independent of inflation pressure by being mounted on a weighted member which vibrates when the tire spins and by including a capacitive element to store power for use when the tire is stationary.

92. Subsequently, in an Amendment dated January 15, 1997, in response to a rejection of the inventors’ application claim 36 by the patent examiner as unpatentable over the prior art, the limitation “a capacitive element connected to the piezo-electric element for storing energy and providing power to the transmitter when the inflatable tire is stationary” was added by the inventors, and issued as ’966 patent claim 13. In that January 15, 1997, Amendment, the inventors again stated that they were revising their claims “such that all of the pending claims are now believed to be allowable over the prior art of record.”

93. Furthermore, the claims of the ’966 patent are invalid under 35 U.S.C. §§ 102

and/or § 103 in view of the prior art, including, for example, U.S. Patent No. 4,163,208 to Merz, issued on July 31, 1979 ("Merz '208 patent"). The Merz '208 patent describes a transmitter power supply for an automatic tire pressure monitoring system that is energized by tire rotation and includes a capacitive element for storing energy generated by the power supply for use by the transmitter.

Invalidity of the '496, '516 and '966 Patents

for Indefiniteness and Non-Enablement

94. The claims of the '496, '516 and '966 patents are in addition invalid under 35 U.S.C. § 112 as indefinite and as not being supported by an enabling patent specification.

95. For example, the terms "first communications link," "second communications link," "communication," "communications unit," "monitor," "monitoring" and "positionable" used in the claims of the '496, '516 and '966 patents fail to meet the requirements of 35 U.S.C. § 112 that "the specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention" and that "the specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention."

Third Defense – Unenforceability for Inequitable Conduct

96. 37 C.F.R. § 1.56 states that

> Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the [Patent and Trademark] Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. . . ,

and that,

> information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and
>
> (1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or
>
> (2) It refutes, or is inconsistent with, a position the applicant takes in: (i) Opposing an argument of unpatentability relied on by the Office, or (ii) Asserting an argument of patentability.

97. The ’496, ’516 and ’966 patents are unenforceable for inequitable conduct because during prosecution of the applications leading to the issuance of those patents, Michael Handfield, Helene Laliberte, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents in suit, and who were substantively involved in the prosecution of the applications leading to issuance of the patents, breached their duty of candor and good faith in dealing with the Patent and Trademark Office, and misled the Patent and Trademark Office, by failing to disclose to the Office all information known to those individuals to be material to patentability of the claims of the patents.

98. U.S. Patent No. 5,231,872 to Bowler et al. issued on August 3, 1993 (“Bowler ’872 patent”). The Bowler ’872 patent describes a tire monitoring system using conductive components of the vehicle including the vehicle ground plane for signal transmission. See, e.g., col. 1 ll. 5–15 and col. 7 l. 56 – col. 8 l. 2. The Bowler ’872 patent also describes a tire monitoring system including a programmable processor and a remote controller communicating

with the programmable processor. See, e.g., col. 1 ll. 5–15, col. 31 ll. 22–40, col. 31 l. 50 – col. 42 l. 45, and col. 36 l. 61 – col. 37 l. 54.

99. U.S. Patent No. 4,163,208 to Merz issued on July 31, 1979 ("Merz '208 patent"). The Merz '208 patent describes a transmitter power supply for an automatic tire pressure monitoring system that is energized by tire rotation and includes a capacitive element for storing energy generated by the power supply for use by the transmitter.

100. U.S. Patent No. 4,717,905 to Morrison et al. issued on January 5, 1988 ("Morrison '905 patent"). The Morrison '905 patent describes a system for monitoring tire pressure using a conductive wheel as an antenna for signal transmission. See, e.g., col. 1 ll. 15–17 and col. 6 ll. 12–30.

Unenforceability of the '496 and '966 Patents – Bowler '872

101. The inventors named in the '496 and '966 patents, Michael Handfield and Helene Laliberte, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents in suit, were aware of the Bowler '872 patent, and aware that Bowler describes a tire monitoring system using conductive components of the vehicle including the vehicle ground plane for signal transmission, and a tire monitoring system including a programmable processor and a remote controller communicating with the programmable processor, during prosecution of the '496 and '966 patents.

102. For example, during the prosecution of the parent application, serial no. 101,379, of the '496 and '966 patents, the inventors, in an Amendment arguing that the rejections of the patent examiner in that parent application, that claims describing the user interface for the tire

pressure monitoring system described in the '496 and '966 patents were unpatentable over the Bowler '872 patent, were incorrect, argued that "[a]pplicants respectively submit that Bowler, et al. do not disclose, either explicitly or implicitly, any of the five steps of Applicants' claimed method" for providing a user interface for a tire parameter monitoring system for a plurality of tires of a vehicle.

103. Claims 1, 7 and 17 of the '496 patent were amended by the inventors during prosecution, by an Amendment dated June 28, 1996, to specifically include the limitation "wherein the electromagnetic path includes a ground plane of the vehicle," and the limitation "an electromagnetic path being formed of a plurality of conductive components of the vehicle including a ground plane of the vehicle," and the limitation "an electromagnetic path being formed of a plurality of conductive components of the vehicle ground plane," in order to overcome rejections by the patent examiner of the inventors' claims as unpatentable over the prior art.

104. In that same Amendment dated June 28, 1996, the inventors also argued that claims 1, 7 and 17 of the '496 patent were patentable because,

> *One of the key features of Applicants' invention is the use of an electromagnetic path which includes a plurality of conductive components of a vehicle*. Applicants have amended independent claims 1, 7, and 17 to further indicate that the electromagnetic path includes the ground plane of the vehicle . . . Applicants respectfully submit that none of the art of record discloses or suggests using conductive components of the vehicle to transmit a pressure or temperature signal as claimed by Applicants.

(Emphasis added).

105. Subsequently, in an Appeal Brief dated January 30, 1997, the inventors again argued that claims 1, 7 and 17 of the '496 patent were patentable because,

> Neither of the references applied by the Examiner address the problem solved by Applicants' invention: communicating a

> relatively weak signal from a sensor disposed within a pneumatic tire to a centrally located receiver . . . *There is no disclosure of an electromagnetic path which includes a plurality of conductive components in the ground plane of the vehicle* as described and claimed by Applicants . . . .
>
> Similarly, Merz '208 also discloses a contactless transmission path. . . . a radio frequency transmitter is used to transmit signals to an operator station . . . *There is no disclosure of transmitting the signal along an electromagnetic path which includes a plurality of conductive components and also the ground plane of the vehicle.*

(Emphasis added).

106. In addition, during prosecution of the application for the '966 patent, in an Amendment dated October 19, 1995, the limitation "programmable processor" and other limiting language was added to original claims 24 and 35 (issued claims 1 and 12 of the '966 patent) in response to a rejection of the inventors' claims as unpatentable over the prior art. In the Amendment, the inventors also argued that these claims were patentable because the prior art did not describe a remote controller communicating with a programmable processor to exchange information such as a tire identification code, or to program the selected threshold:

> . . . Applicants have amended the claims to more particularly point out and distinctly claim that which they regard as their invention while also distinguishing over the prior art of record.
>
> Applicants' claims in this divisional application are directed toward a system for monitoring a parameter of a tire as described in detail on page 28 beginning at line 8 and extending through page 31, line 14 ['966 patent, col. 12, l. 1–col. 13, l. 25].
>
> . . . Furthermore, Applicants' invention includes a remote controller which communicates with the programmable processor to exchange information such as a tire identification code, or to program the selected threshold.

107. Moreover, in an Appeal Brief dated July 1, 1996, the inventors argued that their claims were patentable over the prior art because,

> Applicants disclose and claim a system for monitoring a pneumatic

> tire which includes a remote controller which communicates with a tire pressure and/or temperature sensor for exchanging various control commands with the processor of the sensor. . . .
>
> As described on page 3, lines 13–18, locating the pressure sensor and transmitter unit inside of the tire requires dismounting of the tire to reprogram or test the unit in prior art devices.
>
> As such, the present invention attempts to overcome these programs [sic] found in prior art devices. . . .
>
> The present invention also provides a communication link between a remote controller and the detector/transmitter disposed within the tire so that dismounting of the tire for reprogramming or testing is no longer required . . . .
>
> None of the references cited by the Examiner recognize the problem of programming a tire pressure and/or temperature sensor which is mounted within a pneumatic tire. As such, none of the references cited by the Examiner teach or suggest a remote controller which may be used to exchange information with the sensor unit such as system parameters, thresholds, and the like . . . .

108. The inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the ’496 and ’966 patents, knew, or should have known, that Bowler was material to the patentability of the claims of the ’496 and ’966 patents, because it was not cumulative to information already of record or being made of record in the application for the patents, and (1) it established, by itself or in combination with other information, a prima facie case of unpatentability of a claim of the patents; or (2) it refuted, or was inconsistent with, a position the inventors took in (i) opposing an argument of unpatentability relied on by the Patent Office, or (ii) asserting an argument of patentability; yet the inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents, failed to point out the material teachings of the Bowler ’872 patent to the patent examiner, and furthermore deliberately hid

those teachings during prosecution from the examiner, and thereby misled the patent examiner, with an intent to deceive the Patent and Trademark Office.

Unenforceability of the ’966 Patent – Merz ’208

109. The inventors named in the ’496 and ’966 patents, Michael Handfield and Helene Laliberte, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents in suit, were aware of the Merz ’208 patent, and aware that Merz describes a transmitter power supply for an automatic tire pressure monitoring system that is energized by tire rotation and a capacitive element for storing energy generated by the power supply for use by the transmitter, during prosecution of the ’496 and ’966 patents.

110. During prosecution of the ’966 patent, in an Appeal Brief dated July 1, 1996, in which the inventors argued that the rejections of patent examiner, finding that application claim 36 of the ’966 patent was unpatentable over the prior art, were incorrect, the inventors stated,

> Because none of the art cited recognized the problem associated with prior art piezo-electric elements used in tire monitoring applications, none of them disclose or suggest a piezo-electric element which supplies power independent of inflation pressure by being mounted on a weighted member which vibrates when the tire spins and by including a capacitive element to store power for use when the tire is stationary.

111. Subsequently, in an Amendment dated January 15, 1997, in response to a rejection of the inventors’ application claim 36 by patent examiner as unpatentable over the prior art, the limitation “a capacitive element connected to the piezo-electric element for storing energy and providing power to the transmitter when the inflatable tire is stationary” was added by the inventors, and issued as ’966 patent claim 13. In that January 15, 1997 Amendment, the inventors again stated that they were revising their claims “such that all of the pending claims are

now believed to be allowable over the prior art of record."

112. During prosecution of the '496 patent, in an Appeal Brief dated January 30, 1997, in which the inventors argued that the rejections of the patent examiner, finding that the claims of the application for the '496 patent were unpatentable over the prior art, were incorrect, they stated that the Merz '208 patent describes

> . . . a tire pressure sensor which uses a radio frequency transmitter to transmit signals to an operator station. The transmitter receives its power from an electromagnetic coil energized by rotation of the vehicle's wheel. As disclosed in col. 3, lines 18-22, the Merz invention transmit signals from the tires to the operator station by means of radio frequency signals. The radio frequency transmitter is powered by rotation of the wheels such that batteries or electrical power is eliminated.

113. The inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the '496 and '966 patents, knew, or should have known, that Merz was material to the patentability of the claims of the '966 patent, because it was not cumulative to information already of record or being made of record in the application for the patents, and (1) it established, by itself or in combination with other information, a prima facie case of unpatentability of a claim of the patents; or (2) it refuted, or was inconsistent with, a position the inventors took in (i) opposing an argument of unpatentability relied on by the Patent Office, or (ii) asserting an argument of patentability; yet the inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents, failed to point out the material teachings of the Merz '208 patent to the patent examiner, and furthermore deliberately hid those teachings during prosecution from the examiner, and thereby misled the patent examiner, with an intent to deceive the Patent and Trademark Office.

Unenforceability of the ’516 Patent – Morrison ’905

114. The inventors named in the ’516 patent, Michael Handfield and Helene Laliberte, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents in suit, were aware of the Morrison ’905 patent, and that Morrison describes a system for monitoring tire pressure using a conductive wheel as an antenna for signal transmission, during prosecution of the application for the ’516 patent.

115. During the prosecution of the parent application, serial no. 332,200, of the ’516 patent, the inventors, in an Amendment arguing that the rejections of the patent examiner in that parent application, that claims describing the tire pressure monitoring system described in the ’516 patent were unpatentable over the Morrison ’905 patent, were incorrect, argued that

> None of the references cited by the Examiner disclose a tire pressure monitoring system which transmits a signal via a conductive wheel, i. e. which use a conductive wheel as an antenna. While Morrison, Jr., et a1 ‘905 recognized the problems associated with a rotating antenna (Column 6, lines 27-42) Morrison solved the problem using a loop antenna which is concentrically mounted with respect to the wheel.

116. During prosecution of the ’516 patent, the inventors specifically limited the claims of this patent to the use of a conductive wheel as an antenna for the transmission of a tire pressure signal. During prosecution, the inventors added the claim limitation “the housing also including a conductive portion, the elongate portion being sized to allow the conductive portion of the housing to contact the conductive wheel to allow transmission of the signal using the conductive wheel” to original claim 1, and added the same limitation to newly submitted claims 7 and 10, in an Amendment dated June 18, 1997, in response to the rejection by the patent examiner of original claim 1 as unpatentable over the prior art. Moreover, in that Amendment,

the inventors expressly stated that they were revising their claims "to more particularly point out Applicants' invention . . . .".

117. The inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the '516 patent, knew, or should have known, that the Morrison '905 patent was material to the patentability of the claims of the '516 patent, because it was not cumulative to information already of record or being made of record in the application for the patent, and (1) it established, by itself or in combination with other information, a prima facie case of unpatentability of a claim of the patent; or (2) it refuted, or was inconsistent with, a position the inventors took in (i) opposing an argument of unpatentability relied on by the Patent Office, or (ii) asserting an argument of patentability; yet the inventors, and/or their attorneys and agents, and/or others associated with the inventors, with their assignees or with persons to whom there was an obligation to assign the applications for the patents in suit, failed to point out the material teachings of the Morrison '905 patent to the patent examiner, and furthermore deliberately hid those teachings during prosecution from the examiner, and thereby misled the patent examiner, with an intent to deceive the Patent and Trademark Office.

Fourth Defense – Lack of Personal Jurisdiction

118. Defendants Audi AG and Volkswagen AG are not subject to the jurisdiction of this Court.

Fifth Defense – Equitable Doctrines

119. Plaintiff MHL's claims of infringement are barred by equitable doctrines, including, for example, laches, estoppel, patent misuse, and unclean hands.

Sixth Defense – Statute of Limitations

120. Any claim by Plaintiff MHL for damages is limited under 35 U.S.C. § 286.

Seventh Defense – Lack of Subject Matter Jurisdiction

121. Plaintiff MHL lacks standing to sue and this Court lacks subject matter jurisdiction.

Eighth Defense – Lack of Ownership

122. Plaintiff MHL does not own the '496 patent, the '516 patent, or the '966 patent and is not entitled to any remedy under 35 U.S.C. § 281.

JURY DEMAND

AUDI and VW demand a trial by jury.

Dated: November 21, 2007

Respectfully submitted,

Deron R. Dacus
Texas State Bar No. 00790553
RAMEY & FLOCK, P.C.
100 East Ferguson, Suite 500
Tyler, TX 75702
Tel.: 903-597-3301
Fax: 903-597-2413
derond@rameyflock.com

Michael J. Lennon (admitted pro hac vice)
Jeffrey M. Butler (admitted pro hac vice)
Mark A. Hannemann (admitted pro hac vice)
KENYON & KENYON LLP
One Broadway
New York, NY 10004
Tel.: 212-425-7200
Fax: 212-425-5288

By /s/ Deron Dacus

Attorneys for Defendants
AUDI AG, AUDI OF AMERICA, INC., VOLKSWAGEN AG and VOLKSWAGEN OF AMERICA, INC.

CERTIFICATE OF SERVICE

I hereby certify that this 21st day of November, 2007, a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to Local Rule CV-5(d), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of this document via email, facsimile and/or U.S. First Class Mail this 21st day of November, 2007.

/s/ Deron Dacus
Deron R. Dacus